AMENDMENTS TO THE SPECIFICATION

The following specification amendments are with respect to the substitute specification as filed on January 14, 2005.

Please replace the paragraph no. [0014] with the following amended paragraphs:

[0014] The above mentioned and other aspects and features of the invention will become more apparent and the invention itself will be best understood by referring to the following description of an embodiment taken in conjunction with the accompanying drawings, in which:~~drawing~~

[0014A] Fig. 1 ~~which~~ is a scheme of an Internet INTERNET wherein the method for compressing a list of destination addresses of a multicast message according to the present invention is implemented;

[0014B] Fig. 2 is an exemplary embodiment of the destination list compression device according to the present invention; and.

[0014C] Fig. 3 is an exemplary illustration of an addressing device, routing table memory and datagram formation within a router which may incorporate the present invention.

Please replace the paragraph no. [0016] with the following amended paragraph:

[0016] To explain the invented compression technique it is supposed that host H1 has to multicast an IP (Internet Protocol) datagram to the destination hosts D1, D2 and D3 and thereto applies connectionless multicasting. In the overhead section of this IP datagram, host H1 thus

has to identify the destination hosts D1, D2 and D3 by their respective IP addresses A.B.C.D, A.B.C.E and A.F.G.H. The destination list compression device in host H1 will aid to realize this with low overhead consumption. The destination list compression device comprises a common prefix detector 20, a suffix list generator 21 and an adder 22 that adds common prefix and suffix list into a compound address. The common prefix detector 20 of the destination list compression device in host H1 detects that the addresses A.B.C.D and A.B.C.E of respectively host D1 and host D2 ~~hove~~have a common prefix A.B.C. By subtracting this common prefix A.B.C from the addresses A.B.C.D and A.B.C.E, the suffix list generator 21 of the compression device obtains the suffixes D and E which it uses to generate a suffix list {D,E}. The adder 22 adds this ~~This~~ suffix list {D,E} ~~is added~~ to the common prefix A.B.C to constitute a compound address A.B.C{D,E} that still indicates that the two hosts D1 and D2 belong to the destinations of the IP datagram but which contains only 5 octets, i.e., A, B, C, D and E, instead of the 8 octets, A, B, C, D, A, B, C and E, that have to be embedded in the IP datagram overhead if no compression is applied. As a result of the first iteration step in the compression method, host H1 obtains a list of destination addresses for the IP datagram to be multicasted that consists of the IP address A.F.G.H and the compound destination address A.B.C{D,E}. In a second iteration step, the compression device in host H1 detects that the IP address A.F.G.H and the compound address A.B.C{D,E} still have a common prefix A. By subtracting this common prefix A from the IP address A.F.G.H and the compound address A.B.C{D,E}, the compression device of host H1 generates the suffixes F.G.H and B.C{D,E} from which the list of suffixes {B.C{D,E},F.G.H} is constituted. This list of suffixes {B.C{D,E},F.G.H} is added to the common prefix A to

generate a new compound address A{B.C{D,E},F.G.H} that indicates that the IP datagram has to be multicasted to the destination hosts D1, D2 and D3, but which thereto occupies only 8 octets, i.e., A, B, C, D, E, F, G, H, instead of the 12 octets, A, B, C, D, A, B, C, E, A, F, G and H, that would have been embedded in the overhead section of the IP datagram if no compression was applied. In this way, the overhead for transferring the IP datagram over link L11 has been reduced significantly.

Please replace the paragraph no. [0017] with the following amended paragraph:

[0017] Router R1, upon receipt of the IP datagram addresses its routing table 31 (Fig. 3) with the compound address A{B.C{D,E},F.G.H} supplied from addressing device 30. Such a routing table lookup involves testing the address bits ordered from left to right and is shortened if the compound address A{B.C{D,E},F.G.H} is used instead of the three addresses A.B.C.D, A.B.C.E and A.F.G.H because the common prefixes of the addresses, A and A.B.C, have to be looked up only once via the compound address A{B.C{D,E},F.G.H} instead of respectively three or two times. Routing table lookup performance hence is increased. From the routing table in router R1 it is derived that the destinations whose addresses start with prefix A.B.C, e.g. A.B.C.D and A.B.C.E, have router R2 as next hop on the shortest path thereto. The destination with address A.F.G.H has router R3 as next hop on the shortest path thereto. Router R1 consequently will constitute a new IP datagram in IP datagram generator 32 to be forwarded via link L12 to router R2 and a new IP datagram to be forwarded via link L13 to router R3. The payload sections of these new IP datagrams are copies of the payload section of the IP datagram received via link L11. In the overhead section of the IP datagram that will be forwarded over

link L12, the list of addresses A.B.C.D and A.B.C.E has to be included. The compressed version of this list, A.B.C{D,E}, will be copied from the IP datagram received via link L11 into the header of the new IP datagram that will be transferred over link L12. Alternatively, this list will be re-compressed by the compression device in router R1. This compression device then detects the common prefix A.B.C in the addresses A.B.C.D and A.B.C.E. By subtracting this common prefix from the addresses A.B.C.D and A.B.C.E, the suffixes D and E are obtained, which are combined into a list of suffixes {D,E}. The latter list of suffixes {D,E} is added to the common prefix A.B.C to generate the compound address A.B.C{D,E} that will be embedded in the IP datagram that is forwarded via link L12 to router R2. In the overhead section of the IP datagram transferred over L12, the number of octets required to indicate that this IP datagram has to be forwarded to the destination hosts D1 and D2 is reduced from 8 to 5. In the header of the IP datagram that will be forwarded by router R1 over L13 to router R3, router R1 embeds the address A.F.G.H of destination hosts D3 which cannot be compressed anymore.